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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/823,330	04/12/2004	Tadashi Ohira	CFA00079US	4472

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CANON U.S.A. INC. INTELLECTUAL PROPERTY DIVISION
15975 ALTON PARKWAY
IRVINE, CA 92618-3731

EXAMINER	
YEH, EUENG NAN	

ART UNIT	PAPER NUMBER
2624	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/823,330	OHIRA, TADASHI	
	Examiner	Art Unit	
	EUENG-NAN YEH	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 March 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23* is/are pending in the application.

4a) Of the above claim(s) *1-6,13-18,20,21 and 23* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *7-12,19 and 22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12 April 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *Jul 6, 2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Claims 1-6, 13-18, 20-21, and 23 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected Species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on March 19, 2008.

2. Applicant's election without traverse of Species 2, corresponding to claims 7-12, 19, and 22, in the reply filed on March 19, 2008 is acknowledged.

Priority

3. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Specification

4. The title of the invention, "Image processing apparatus and method" is too general to reveal the real intention to which the claims are directed. A new title is suggested: "Image processing apparatus and method with pseudo-coded reference data".

5. The disclosure is objected to because of the following informalities and appropriate corrections are required:

a) paragraph 57, line 1: "When the switch 101 is off (while interframe ...". In this off position, according to figure 3, this is under intraframe not interframe situation.

b) paragraph 66, line 4: "the inverse DCT unit 108, and the adder 109 ...". For this I frame encoding process, are you sure the #109 is needed? Clarification is needed. Similar condition appears in paragraph 151, line 8.

c) paragraph 157 states that #106 output data from #13 and #105 which is inconsistent with the data flow as depicted in figure 15. Clarification is needed.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 7-12, 19, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Hannuksela et al. (US 2001/0040700 A1), Klein Gunnewiel et al. (US 2003/0086622 A1), and Lee (US 2003/0156198 A1).

Regarding claims 7 (apparatus), 19 (method), and 22 (computer-readable medium), Hannuksela discloses a data process system comprising:

a) input means for inputting image data (as depicted in figure 3, numeral 101 “an input 101 for receiving a video signal from a camera or video source (not shown) of the terminal 1” in paragraph 46, line 3);

b) first coding means for coding the input image data by transforming the input image data into frequency components in units of blocks and coding said frequency components by adaptively using an intracoding mode and an interceding mode (“Block layer data consist of uniformly quantised discrete cosine transform coefficients, which are scanned in zigzag order, processed with a run-length encoder and coded with variable length codes. MPEG-2 and MPEG-4 layer hierarchies resemble the one in H.263” in paragraph 15, line 1. As depicted in figure 3, numerals 102, 103, and 104 “A switch 102 switches the encoder between an INTRA-mode of coding and an INTER-mode. The encoder part 100 of the video codec 10 comprises a DCT transformer 103, a quantiser 104 …” in paragraph 46, line 4);

d) multiplexing means for outputting combined data obtained by combining the image data coded by said second coding means with the image data coded by said first coding means (as depicted in figure 2, numeral 50 “encoded video data is then output to the multiplexer 50. The multiplexer 50 multiplexes the video data from the video codec 10 and control data from the control 40 (as well as other signals as appropriate) into a multimedia signal. The terminal 1 outputs this multimedia signal to the receiving terminal 2 …” in paragraph 48, line 6. “The video codec outputs the quantised DCT coefficients 112a *(figure 3)*, the quantising index 112b … the motion vectors 112e for the picture

being coded. These are multiplexed together with other multimedia signals by the multiplexer 50" in paragraph 53, line 1.

System with multi layers is used: "Scalable multimedia is typically ordered so that there are hierarchical layers of data. A base layer contains a basic representation of the multimedia clip whereas enhancement layers contain refinement data on top of underlying layers. Consequently, the enhancement layers improve the quality of the clip. Scalability is a desirable property for heterogeneous and error prone environments. This property is desirable in order to counter limitations such as constraints on bit rate, display resolution, network throughput, and decoder complexity. Scalability can be used to improve error resilience in a transport system …" in paragraph 122, line 1. As depicted in figure 11 with base layer and enhancement layer, the spatially scalable structure "allows for the creation of multi-resolution bit streams to meet varying display requirements and/or constraints" in paragraph 128, line 1.

Thus, the multiplexer will output the combination of hierarchical layers of data.

Hannuksela does not explicitly disclose a decoded means for the enhanced data. Furthermore, Hannuksela does not explicitly teach the frequency limitation.

Klein Gunnewiek, in the same field of endeavor of video encoder ("particularly to a video encoder which uses efficient spatial scalable compression" in paragraph 1, line 2), teaches an scalable enhancement codec as depicted in figure 3, numeral 314 based on local decoding #338 (inverse quantization), #340 (inverse DCT), and #348 on the input image data coded by first coding means such as #330 (DCT) and # 332 (Q) or first coding means from Hannuksela figure 3 #103 (DCT) and #104 (Q) to obtain the

reconstructed image data then perform second coding such as #368 (DCT) and #370 (Q) under the bitrate controller #374.

It would have been obvious at the time the invention was made to one of ordinary skill in the art would have been motivated to provide the data processing system Hannuksela made with bitrate controlled scalable enhancement technique as taught by Klein Gunnewiek, not only it "can be used to improve error resilience in a transport system" in Hannuksela paragraph 124, line 1, but also "providing more efficient spatial scalable compression schemes which reduces the necessary bitrate of the encoder" in Klein Gunnewiek paragraph 9, line 3.

The Hannuksela and Klein Gunnewiek combination does not explicitly teach the frequency limitation.

Lee, in the same field of endeavor of video coding ("particularly, to a stream-based bitrate transcoder for MPEG bitstreams" in paragraph 3, line 2), teaches the importance of bitrate control "[b]itrate transcoding is a very powerful tool to adapt the dynamic bitrate changes in networked multimedia applications, especially in a heterogeneous networks environment" in paragraph 5, line 1. And "bitrate controller is used to overcome two potential problems with (1) reducing too many bits for dropping too many coefficients and (2) too few coefficients being dropped. A simple TM5 rate control is used to deal with these problems. It should be noted that the coefficient dropping starts with the non-zero high frequency coefficients towards the low frequency ones and DC coefficients are never selected for dropping" in paragraph 43, line 3.

Thus, the bitrate controller can be used to limiting DCT frequency components during data processing.

It would have been obvious at the time the invention was made to one of ordinary skill in the art would have been motivated to include the said data processing system of the Hannuksela and Klein Gunnewiek combination, with limited DCT frequency components as taught by Lee, not only this method can be "quickly adaptive to the dynamic changes of bitrate requirements for bandwidth-limited networked multimedia applications" in paragraph 44, line 7, but also a "consistent video quality may be maintained to some extent" in paragraph 23, line 9.

Regarding claim 8, second coding means performs coding on only direct-current components obtained by limiting said frequency components (as discussed in claim 7, "…and DC coefficients are never selected for dropping" in Lee paragraph 43, line 9. Thus, the Hannuksela, Klein Gunnewiek, and Lee combination teaches that other coefficients can be dropped and the DC components can be the only frequency components used).

Regarding claim 9, first coding means and said second coding means use an MPEG-4 standard to code the image data ("The invention may be implemented in other video coding protocols. For example MPEG-4 defines so-called user data, which can contain any binary data and is not necessarily associated with a picture. The additional field may be added to these fields" in Hannuksela paragraph 136, line 1. See also

"Most video compression standards support spatial scalability. FIG. 1 illustrates a block diagram of an encoder 100 which supports MPEG-2/MPEG-4 spatial scalability" in Klein Gunnewiek paragraph 5, line 1).

Regarding claim 10, said multiplexing means locates the image data coded by said second coding means in a user data area in a video plane object in a stream of the combined data output by said multiplexing means (as depicted in Hannuksela figure 7 "shown in FIG. 7, the bit stream includes a further codeword SRPN which is a codeword indicating the Spare Reference Picture Number … Alternatively, the SRPN may be included in the Supplemental Enhancement Information PSUPP …" in paragraph 109, line 4. Figures 8 and 9 show examples of a bit stream output by an encoder with the enhancement data. Further discussion about the coding of additional enhancement information can be found in paragraphs 114 and 115).

Regarding claim 11, multiplexing means combines the image data coded by said second coding means with a stream of the image data intercoded by said first coding means (as discussed in claim 7, multiplexer of the scalable multimedia system will multiplex together enhanced coding data with base, interceded with first coding means, coding data).

Regarding claim 12, the image data coded by said second coding means is used as a reference image when the image data coded in the intercoding mode by said first

coding means is decoded (discussed in claim 7 which shows the importance of the enhanced layer in the scalable system: ".. Consequently, the enhancement layers improve the quality of the clip … Scalability can be used to improve error resilience in a transport system …" in Hannuksela paragraph 122, line 5. Thus, during decoding the first coded means data process the second coded means data is used as a reference image to improve quality and avoid error).

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eueng-nan Yeh whose telephone number is 571-270-1586. The examiner can normally be reached on Monday-Friday 8AM-4:30PM EDT.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vikkram Bali can be reached on 571-272-7415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Eueng-nan Yeh
Assistant Patent Examiner
Art Unit: 2624
/E.Y./

/Vikkram Bali/
Supervisory Patent Examiner, Art Unit 2624